



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,640	02/19/2004	Karl Joseph Bois	200315309-1	4114
22879 7590 04/30/2007 HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			EXAMINER DINH, TUAN T	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 04/30/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.		Applicant(s)	
	10/782,640		BOIS ET AL.	
	Examiner		Art Unit	
	Tuan T. Dinh		2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,8,16,17,19,20 and 26-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2,4,8,16-17,19-20,26,28-31,33-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 4, 8, 16-20, 26, 28, 31, 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Pommer (U.S. Patent 5,839,188).

As to claims 1, 4, 16, 19, 26, 28, 31, 33, Pommer discloses a printed circuit board (PCB) substrate and its method (10) as shown in figures 1-3, comprising:

first and second dielectric materials (dielectric layers 22, 32) associated with first and second current return layers (24, 34);

a signal path layer (26; 36) interposed between said first dielectric material and said second dielectric material; and

an adhesive layer (40) interposed between said first and second dielectric materials, said adhesive layer (40) being substantially coplanar relative to said signal path layer (26; 36), said adhesive layer (40) comprises dielectric material selected from the group consisting of a two-sided adhesive tape, an epoxy adhesive sheet that

Art Unit: 2841

contains a glass based adhesive (44, column 8, line 11), having a lower loss tangent than said first dielectric material and has a higher glass transition point than said first dielectric material, see column 7, line 57 through column 8, line 54), note: the adhesive containing a glass particles within such that the loss tangent is lower than the resin (dielectric layer).

As to claims 2, 17, Pommer discloses said adhesive layer (40) is comprised of a material operable to substantially reduce attenuation due to an electrical coupling effect between a pair of signal traces (26, 36) disposed in said signal path layer.

As to claim 8, Pommer discloses said first dielectric material (22) comprises a material selected from the group consisting of PR-4 material, pre-preg material core material, and B-stage substrate material, see columns 7-8.

As to claim 20, Pommer further comprising curing a layer of said PCB substrate, said layer selected from the group consisting of said first dielectric material said second dielectric material, and said adhesive layer.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 29-30 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pommer in view of Fischer et al. (U.S. Patent 6,344,371).

Regarding claims 29-30, and 34-35, Pommer discloses all of the limitations of the claimed invention, except for the adhesive layer made by ePTPE having loss tangent of about 0.0036. Fischer et al. teaches a multilayer as shown in figures 1-10 comprising an adhesive filler made by ePTPE and having a loss tangent about 0.0036.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a teaching of Fischer applied in the PCB of Pommer in order to provide a high density package.

Allowable Subject Matter

5. Claims 27, 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 1-2, 4, 8, 16-17, 19-20, and 26-35 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues:

Pommer does not disclose "the adhesive layer having a lower loss tangent than the dielectric material." Examiner disagrees because the composition of the adhesive containing particles that including glass, and the dielectric layer is made by resin. Therefore, the adhesive layer having a lower loss tangent than said first dielectric material.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan T. Dinh whose telephone number is 571-272-1929. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reichard Dean can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tuan Dinh
April 25, 2006.



TUAN T. DINH
PRIMARY EXAMINER